

I claim:

Pub D1
1. A device for treating an incompetent anatomical valve or sphincter within the body of a patient, wherein said valve or sphincter controls flow of fluid through a vessel of the body and is supported by tissue of the vessel near the valve, said device comprising:

a catheter body having a distal end and a proximal end, said distal end being adapted for insertion into the body;

a first balloon located at the distal end of the catheter, said first balloon being inflatable to a diameter greater than the catheter body distal end, and a first inflation lumen communicating from the proximal end of the catheter body to the distal end of the catheter body;

a heating element mounted on the distal end of the catheter, proximal to the first balloon;

a suction lumen communicating from the proximal end of the catheter body to the distal end of the catheter body, and a suction port located on the distal end of the catheter communicating from suction lumen to the exterior of the catheter body, said suction port being located proximate the heating element; whereby suction applied to the vessel through the suction port will draw the tissue of the vessel near the valve toward the heating element.

2. The device of claim 1 further comprising:

a second balloon located at the distal end of the catheter, proximal to the first balloon, the heating element and

suction port, said second balloon being inflatable to a diameter greater than the catheter body distal end.

3. The device of claim 2 further comprising:

a second inflation lumen communicating from the proximal end of the catheter body to the second balloon on the distal end of the catheter body.

4. The device of claim 1 further comprising:

a pair of wires running from the heating element to the proximal end of the catheter, said wires adapted to electrically connect the heating element to direct current power supply; and

wherein the heating element is a resistive heating element.

5. The device of claim 1 further comprising:

a wire running from the heating element to the proximal end of the catheter, said wire adapted to electrically connect the heating element to a radiofrequency power supply; and

wherein the heating element is a radiofrequency electrode adapted for transmission of radiofrequency energy into the tissue of the vessel.

6. A method of treating a vessel of the human body, wherein the vessel includes an anatomical valve which controls the flow of fluids through the vessel, said method comprising;

providing a catheter having a distal end adapted for insertion into the vessel, a first balloon disposed on

the distal end of the catheter, a heating element disposed on the distal end of the catheter a short distance proximal to the balloon, a suction port located near the heating element;

- 5 inserting the distal end of the catheter into the vessel so that the heating element is located near the valve;

inflating the first balloon;

applying suction to the vessel through the suction port to draw down the vessel wall until the vessel is in contact with the heating element

heating the heating element to cause thermal injury to the vessel; and

withdrawing the catheter from the vessel.

7. The method of claim 6 further comprising the steps of:

providing a second balloon on the distal end of the catheter, said second balloon located proximal to the first balloon, the heating element and the suction port;

after inserting the distal end of the catheter into the vessel, inflating the second balloon to isolate the section of the vessel including the valve between the first and second balloons.

8. The method of claim 6 further comprising:

flushing a fluid through the suction port into the vessel prior to applying suction to the vessel through the suction port.

25

add
B₁